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PATENT  
Serial No. 09/777,471 (89190.157900/DP-303637)  
Response to Office Action dated January 12, 2004

## IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant:	Bircann, et al.	)	Examiner: D. Bonderer
Serial No.:	09/777,471	)	Art Unit: 3732
Filed:	February 6, 2001	)	
For:	SLEEVELESS SOLENOID FOR A LINEAR ACTUATOR	)	

### AMENDMENT AND RESPONSE TO OFFICE ACTION

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Amendments to the Claims are reflected in the list of claims which  
begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

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04/29/2004 THAKIM 00000002 100223 09777471

01 FC:1251 110.00 DA

Adjustment date: 07/15/2004 EEKUBAY1  
04/29/2004 THAKIM 00000002 100223 09777471  
01 FC:1251 110.00 CR

STATUS AND ENTITY  
BRANCH

PATENT  
89190.157900 (DP-303637)

2004 MAY 25 PM 4: 08  
IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant(s): Raul A. Bircann, et al.

Serial No.: 09/777,471

Filed: February 6, 2001

For: SLEEVELESS SOLENOID FOR A  
LINEAR ACTUATOR

Examiner:  
D. Bonderer

Art Unit:  
3732

**REQUEST FOR REFUND UNDER 37 C.F.R. §1.26**

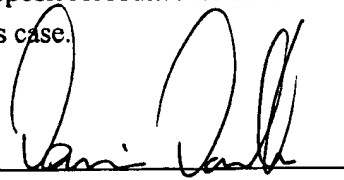
Mail Stop 16  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicants hereby request a refund in the amount of \$110.00 to Deposit Account No. 10-0223 in connection with the above-identified application. Enclosed is a copy of the USPTO Deposit Account Statement for the month of April, 2004 which shows a charge of \$110.00. Applicants believe that this charge to the aforementioned deposit account was made in error. Enclosed is an Office Action dated January 12, 2004, in which the three month period for response without extensions was April 12, 2004. Applicants responded to the Office Action on April 12, 2004. A copy of this Amendment and Response, along with the Certificate of Mailing pursuant to 37 C.F.R. § 1.8 indicating the response date of April 12, 2004 is enclosed herein. Therefore, Applicants submitted a timely response within the three month period and no extensions of time are believed to be needed in this particular case.

Please refund the \$110.00 charged to Deposit Account No. 10-0223 or provide us with reasons why the \$110.00 fee was charged in this case.

Dated: May 21, 2004

  
Dennis B. Danella  
Reg. No. 46,653

JAECKLE FLEISCHMANN & MUGEL, LLP  
39 State Street, Suite 200  
Rochester, New York 14614-1310  
Tel: (585) 262-3640  
Fax: (585) 262-4133

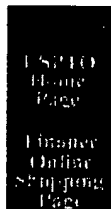
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**United States  
Patent and  
Trademark Office**

STATUS AND ENTITY  
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2004 MAY 25 PM 4:08



**Deposit Account Statement**

Requested Statement Month: April 2004  
 Deposit Account Number: 100223  
 Name: JAECKLE, FLEISCHMANN & MUGEL  
 Attention: DIANNE ARAZY  
 Address: 39 STATE STREET  
 City: ROCHESTER  
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 Zip: 14614-1310

DATE	SEQ	POSTING REF TXT	ATTORNEY DOCKET NBR	FEE CODE	AMT	BAL
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04/29	1177	1259104	SENTRY SUPREME	7205	\$100.00	\$24,488.
04/29	1178	1259104	SENTRY SUPREME	7201	\$400.00	\$24,088.

START	SUM OF	SUM OF	END
BALANCE	CHARGES	REPLENISH	BALANCE
\$24,009.00	\$10,079.00	\$10,158.00	\$24,088.00

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PTO/SB/21 (08-03)

Approved for use through 07/31/2008. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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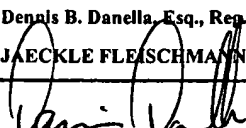
Application Number	09/777,471
Filing Date	February 6, 2001
First Named Inventor	Raul A. Bircann, et al
Art Unit	3732
Examiner Name	D. Bonderer
Attorney Docket Number	89190.157900/DP-303637

Total Number of Pages in This Submission

## ENCLOSURES (check all that apply)

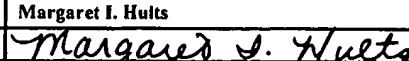
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<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input checked="" type="checkbox"/> Request for Refund	Acknowledgement Postcard (1)
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<input type="checkbox"/> Certified Copy of Priority Document(s)	Remarks	
<input type="checkbox"/> Response to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Dennis B. Danella, Esq., Reg. No.: 46,653 JAECKLE FLEISCHMANN & MUGEL, LLP
Signature	
Date	May 21, 2004

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Typed or printed name	Margaret I. Hults
Signature	
Date	May 21, 2004

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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RECEIVED IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DATE: April 12, 2004  
INVENTORS Bircann, et al  
SERIAL NO.: 09/777,471

DOCKET: 89190.157900/DP-303637

FILING DATE: February 6, 2001  
FOR: SLEEVELESS SOLENOID FOR A LINEAR ACTUATOR

PAPERS ENCLOSED: Transmittal Letter (General - Patent Pending)(1 page + 1 Duplicate page); Amendment and Response to Office Action (13 pages + 1 duplicate page); Certificate of First Class Mail for each; Return Receipt Postcards (2).

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DATE: April 12, 2004  
INVENTORS Bircann, et al  
SERIAL NO.: 09/777,471  
FILING DATE: February 6, 2001  
FOR: SLEEVELESS SOLENOID FOR A LINEAR ACTUATOR

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PAPERS ENCLOSED: Transmittal Letter (General - Patent Pending)(1 page + 1 Duplicate page); Amendment and Response to Office Action (13 pages + 1 duplicate page); Certificate of First Class Mail for each; Return Receipt Postcards (2).

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TRANSMITTAL LETTER  
(General - Patent Pending)

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Docket No.  
89190.157900/DP-303637

In Re Application Of: Bircann, et al

2001 MAY 25 PM 4:10

Serial No.  
09/777,471

Filing Date  
February 6, 2001

Examiner  
D. Bonderer

Group Art Unit  
3732

Title: SLEEVELESS SOLENOID FOR A LINEAR ACTUATOR

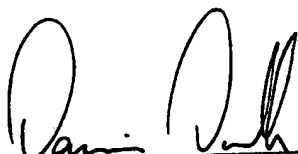
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Amendment and Response to Office Action (13 pages + 1 duplicate page);  
Certificate of Mailing By First Class Mail for the above; and  
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in the above identified application.

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☐ A check in the amount of \_\_\_\_\_ is attached.  
☒ The Director is hereby authorized to charge and credit Deposit Account No. 10-0223  
as described below.  
☐ Charge the amount of \_\_\_\_\_  
☒ Credit any overpayment.  
☒ Charge any additional fee required.

  
Signature

Dated: April 12, 2004

Dennis B. Danella, Esq.  
Reg. No.: 46,653  
JAECKLE FLEISHMANN & MUGEL, LLP  
39 State Street, Suite 200  
Rochester, New York 14614-1310  
Telephone: (585) 262-3640  
Facsimile: (585) 262-4133

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Signature of Person Mailing Correspondence

Margaret I. Hults

Typed or Printed Name of Person Mailing Correspondence

CC:



**CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8)**

Applicant(s): Bircann, et al

Docket No.

89190.157900/DP-303637

Serial No.

09/777,471

Filing Date

February 6, 2001

Examiner

D. Bonderer

Group Art Unit

3732

Invention: SLEEVELESS SOLENOID FOR A LINEAR ACTUATOR

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STATUS AND BRANCH

PATENT

Serial No. 09/777,471 (89190.157900/DP-303637)

2004 MAY 25 Response to Office Action dated January 12, 2004

## IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant:	Bircann, et al.	)	Examiner: D. Bonderer
		)	
Serial No.:	09/777,471	)	Art Unit: 3732
		)	
Filed:	February 6, 2001	)	
		)	
For:	SLEEVELESS SOLENOID FOR	)	
	A LINEAR ACTUATOR	)	

### AMENDMENT AND RESPONSE TO OFFICE ACTION

**Mail Stop Non-Fee Amendment**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**Amendments to the Claims** are reflected in the list of claims which begins on page 2 of this paper.

**Remarks** begin on page 8 of this paper.

**Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended): A solenoid for providing linear actuation, comprising:
  - a) first and second polepieces having axial bores coaxially disposed along a common axis;
  - b) an electrical conductor wound about said polepieces in a plurality of turns;
  - c) an armature ~~slidably~~ movably disposed in said axial bores;
  - d) a bearing axially retained in one of said first and second polepieces; and
  - e) a shaft attached coaxially to said armature and extending through a supportive bore in said bearing wherein said bearing radially supports said shaft, said shaft being axially displaceable by electromagnetic displacement of said armature to provide said actuation, and wherein said armature is entirely separated from said axial bores of said polepieces by a generally cylindrical air gap.
2. (Cancelled).

2004 MAY 25 PM 4:11

3. (Currently amended): A solenoid in accordance with Claim 1 wherein said armature is frusto-conical, wherein the armature is prevented from contacting the polepieces.

4. (Original): A solenoid in accordance with Claim 1 wherein said solenoid is included in an actuator attachable to a device for providing linear actuation to said device.

5. (Original): A solenoid in accordance with Claim 1 wherein the respective diameters of said bearing bore and said shaft are as nearly identical as is possible without engendering drag on said shaft.

6. (Currently Amended): A valve assembly for exhaust gas recirculation between the exhaust manifold and the intake manifold of an internal combustion engine, said assembly including an exhaust gas recirculation valve and further including a solenoid actuator attached to said valve, said solenoid actuator having first and second polepieces having axial bores coaxially disposed along a common axis, an electrical conductor wound about said polepieces in a plurality of turns, an armature ~~slidably~~ movably disposed in said axial bores, a bearing axially retained in one of said first and second polepieces, and a shaft attached coaxially to said armature and extending through a supportive bore in said bearing wherein said

2004 MAY 25 PM 4:11

bearing radially supports said shaft, said shaft being axially displaceable by electromagnetic displacement of said armature to provide actuation of said valve, and wherein said armature is entirely separated from said axial bores of said polepieces by a generally cylindrical air gap.

7. (Currently Amended): An internal combustion engine, comprising:

a) an intake manifold;

b) an exhaust manifold; and

c) a valve assembly for exhaust gas recirculation between said

exhaust manifold and said intake manifold, said assembly including an exhaust gas recirculation valve and further including a solenoid actuator attached to said valve and having first and second polepieces having axial bores coaxially disposed along a common axis, an electrical conductor wound about said polepieces in a plurality of turns, an armature ~~slidably~~ movably disposed in said axial bores, a bearing axially retained in one of said first and second polepieces, and a shaft attached coaxially to said armature and extending through a supportive bore in said bearing wherein said bearing radially supports said shaft, said shaft being axially displaceable by electromagnetic displacement of said armature to provide actuation of said valve to admit exhaust gas from said exhaust manifold into said intake

manifold, and wherein said armature is entirely separated from said axial bore of said polepieces by a generally cylindrical air gap.

8. (Currently Amended): A solenoid for providing linear actuation, comprising:

- a) a housing;
- b) first and second polepieces, within said housing, having axial bores coaxially disposed along a common axis;
- c) an electrical conductor wound about said polepieces in a plurality of turns;
- d) an armature ~~slidably~~ movably disposed in said axial bores;
- e) a bearing axially retained in one of said first and second polepieces; and
- f) a shaft attached coaxially to said armature and extending through a supportive bore in said bearing wherein said bearing radially supports said shaft, said shaft being axially displaceable by electromagnetic displacement of said armature to provide said actuation, and wherein said armature is entirely separated from said axial bore of said polepieces by a generally cylindrical air gap.

9. (Cancelled).

2004 MAY 25 PM 4:11

10. (Currently amended): A solenoid in accordance with Claim 8 wherein said armature is frusto-conical, wherein the armature is prevented from contacting the polepieces.

11. (Previously presented): A solenoid in accordance with Claim 8 wherein said solenoid is included in an actuator attachable to a device for providing linear actuation to said device.

12. (Previously presented): A solenoid in accordance with Claim 8 wherein the respective diameters of said bearing bore and said shaft are as nearly identical as is possible without engendering drag on said shaft.

13. (Previously presented) A solenoid in accordance with Claim 1 wherein said bearing has an axial length that is at least 1.5 times larger than the diameter of said shaft.

14. (Previously presented) A solenoid in accordance with Claim 6 wherein said bearing has an axial length that is at least 1.5 times larger than the diameter of said shaft.

15. (Previously presented) A solenoid in accordance with Claim 7 wherein said bearing has an axial length that is at least 1.5 times larger than the diameter of said shaft.

STATUS AND ENTITY  
BRANCH

PATENT

Serial No. 09/777,471 (89190.157900/DP-303637)

Response to Office Action dated January 12, 2004

2004 MAY 25 PM 4: 12

16. (Previously presented) A solenoid in accordance with Claim 8 wherein said bearing has an axial length that is at least 1.5 times larger than the diameter of said shaft.



2004 MAY 25 PM 4: 12

**Remarks**

Applicants respectfully request that the Examiner reconsider the present application in light of the above amendments and following remarks. Claims 1, 3, 6-8 and 10 have been amended and claims 2 and 9 have been cancelled. No claims have been added. Therefore, claims 1, 3-8 and 10-16 are pending in the present application.

Claims 1, 3 and 4 have been rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,313,726 to Golovatai-Schmidt et al. ("the Golovatai reference"). Applicants respectfully traverse this rejection.

Amended claim 1 is directed to a solenoid for providing linear actuation having first and second polepieces with axial bores that are coaxially disposed along a common axis, an electrical conductor wound about the polepieces in a plurality of turns, and an armature movably disposed in the axial bores. In addition, a bearing is axially retained in one of said first and second polepieces and operates to radially support a shaft. The shaft is attached coaxially to the armature and extends through a supportive bore in the bearing. The shaft is axially displaceable by electromagnetic displacement of the armature to provide the actuation. Further, the armature is entirely separated from the axial bore of the polepieces by a generally cylindrical air gap.

STATUS AND ENTITY  
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2004 MAY 25 PM 4: 12

PATENT  
Serial No. 09/777,471 (89190.157900/DP-303637)  
Response to Office Action dated January 12, 2004

By providing a solenoid in accordance with the present invention, numerous advantages are realized. For instance, removing the sleeve used in prior art solenoid actuators allows the actuator to be entirely separated from the first and second polepieces, which results in improved performance of the solenoid in the present invention. See FIG. 3.

None of the references of record teach or suggest a solenoid having an armature that is entirely separated from the axial bores of the first and second polepieces by a generally cylindrical air gap as recited in amended claim 1. While the Golovatai reference may include a gap (7) between the armature (8) and the coil spool (2), there is no gap formed between armature (8) and polepiece (22) as required by claim 1. Instead, as best seen in FIG. 2 of the Golovatai reference, the bottom portion of armature (8) is in contact with the polepiece (22). The contact between the armature (8) and the polepiece (22) will create a drag force on the shaft during linear actuation, which highlights one of the problems the present invention intends to solve.

For at least the forgoing reasons, Applicants respectfully request that the rejection of claim 1 be withdrawn. As claims 3 and 4 depend from claim 1, these claims are also not taught or suggested by the references of record for the same reasons set forth with respect to claim 1. Thus, Applicants request that the rejection of claims 3 and 4 also be withdrawn.

2004 MAY 25 PM 4:12

Dependant claims 3 and 4 include additional features that further distinguish the present invention from the references of record. For instance, amended claim 3 is directed to the solenoid recited in claim 1 with an armature that is frusto-conical, wherein the armature is prevented from contacting the polepieces. See *Specification*, pg. 5, lines 18-20. Since the armature in the Golovatai reference is not prevented from contacting the polepieces, the Golovatai reference fails to teach every limitation included in claim 3. While the armature in the Golovatai reference may be cylindrical with one of its distal ends being tapered inwardly, the armature is not frusto-conical as suggested by the Examiner. See *Office Action*, pg. 2. For this additional reason, Applicants request that the rejection of claim 3 be withdrawn.

Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Golovatai reference. As stated above, the Golovatai reference does not teach or suggest a solenoid having an armature that is entirely separated from the axial bores of the first and second polepieces by a generally cylindrical air gap as recited in amended claim 1. As claim 5 depends from claim 1 and includes all of the limitations therein, claim 5 is not taught or suggested by the references of record for at least the same reasons set forth with respect to claim 1. Thus, Applicants request that the rejection of claim 5 be withdrawn.

Claims 6-8 and 10-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Golovatai reference in view of U.S. Patent No. 5,947,092 to

2004 MAY 25 PM 4: 12

Hussey et al. ("the Hussey reference"). Applicants respectfully traverse this rejection.

As with claim 1, claims 6, 7 and 8 are directed to a solenoid having an armature that is entirely separated from the axial bores of the first and second polepieces by a generally cylindrical air gap. Therefore, Applicants submit that claims 6, 7 and 8 are also not taught or suggested by the Golovatai reference for at least the same reasons set forth with respect to claim 1. Moreover, the Hussey reference fails to add anything to the Golovatai reference except to provide an actuation valve having a sleeve (112) positioned between an armature (110) and a pair of polepieces (60, 62). See Col. 5, lines 45-62. Not only does the Hussey reference fail to provide for an air gap as required by the present invention, the sleeve in the Hussey reference contributes to the thickness of the non-magnetic gap between the armature and the polepieces thereby limiting the maximum actuating force of the solenoid. See *Specification*, pg. 2, lines 8-13; FIG. 1. Therefore, the Hussey reference actually highlights the prior art drawbacks and deficiencies that the present invention intends to solve.

Since claims 10-12 depend from claim 8 either directly or indirectly, these claims are also allowable over the Golovatai reference for at least the same reasons discussed above with respect to claim 1. Moreover, claim 10 is believed to distinguishable over the references of record since there is no teaching or

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suggestion of a frusto-conical armature that is prevented from contacting the polepieces.

Claims 13-16 are also not taught or suggested by the references of record. Claims 13-16 depend from claims 1, 6, 7 and 8, respectively, and are directed to a solenoid having a bearing with an axial length that is 1.5 times larger than the diameter of the shaft. In rejecting claims 13-16, the Examiner generally stated that "[a]ll of the structural limitations of the valve have been met." *Office Action*, pg. 3. However, the Examiner has failed to point out any specific features in the Golovatai and Hussey references that disclose a bearing, as disclosed in independent claims 1, 6, 7 and 8, having an axial length that is 1.5 times larger than the diameter of the shaft. *See Ex parte Humpherys*, 24 USPQ.2d 1255 (B.P.A.I. 1992) (stating that the Examiner must provide specific reasons to support an obviousness rejection). Given the failure to point out anything in the references of record to teach the features included in claims 13-16, Applicants request that the rejection of claims 13-16 be withdrawn.

#### Conclusion

Accordingly, Applicants submit that claims 1, 3-8 and 10-16 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

STATUS AND ENTITY  
BRANCH

PATENT  
Serial No. 09/777,471 (89190.157900/DP-303637)  
Response to Office Action dated January 12, 2004

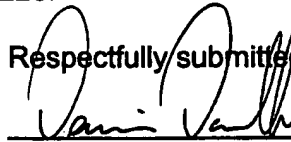
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Applicants do not believe that any fees are due at this time, however, the  
Commissioner is hereby authorized to charge any fees that may have been  
overlooked to Deposit Account No. 10-0223.

4/12/04

Date

Respectfully submitted,



Dennis B. Danella  
Reg. No. 46,653

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Rochester, New York 14614-1310

Telephone: (585) 262-3640

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STATUS AND ENTRY  
BRANCH



2004 MAY 25 PM 4:12  
UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,471	02/06/2001	Raul A. Bircann	89190.157900/DP-383637	4278

7590 01/12/2004  
Delphi Technologies, Inc.  
P.O. Box 5052  
Mail Code 480414420  
Troy, MI 48007

OA due:

12 APR 04

EXAMINER

BONDERER, DAVID A

ART UNIT PAPER NUMBER

3732

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

DOCKETED  
Resp to OA due 4-12-04  
By: JLB  
3/2/04

RECEIVED/DELPHI

JAN 14 2004

Legal Staff

STATUS AND ENTRY BRANCH Application No.		Applicant(s)	
09/777,471 Examiner		BIRCANN ET AL.	
D. Austin Bonderer		Art Unit	
		3732	

# Office Action Summary

2004 MAY 25

PH 0-12

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_



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**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Golovatai-Schmidt et al.

Golovatai discloses a valve comprising:

- Two pole pieces 21, 22;
- An electric core;
- A bearing 12 axially retained in one of the two pole pieces;
- The effective bearing diameter nearly identical as that of the shaft;
- A gap 7;
- An armature 110;
- A shaft 36;
- Gap filled with air 7;
- The armature is frusto-conical; and
- Attachable to a device providing for linear actuation.

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*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golovatai.

As mention before the effective inner diameter of Golovatai is nearly identical as the shaft. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to a smaller barring, since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Also the ratio of the baring length to the shaft diameter is considered to be an optimum range decision.

5. Claims 6- 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golovantai in view of Hussy et al.

Golovantai discloses a valve. Hussy teaches the use of an EGR valve in a combustible engine. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the valve design of Golovantai in the EGR Valve of Hussy as it is just intended use. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 1964 (1987). All the structural limitations of the valve have been met.

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*Response to Arguments*

6. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cornea et al., Stolk et al., Kather et al., and Frankenberg disclose relevant art to the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Austin Bonderer whose telephone number is 703.306.5911. The examiner can normally be reached on Monday- Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P Shaver can be reached on 703.308.2582. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0873.

  
PEDRO PHILOGENE  
PRIMARY EXAMINER

# **Notice of References Cited**

STATUS AND FEE  
Application/Control No.  
09/777,471  
2001 MAY 25 PM 4:13  
D. Austin Bonderer

Applicant(s)/Patent Under  
Reexamination  
BIRCANN ET AL.

Art Unit  
3732

Page 1 of 1

## **U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
/	A	US-5,460,146 A	10-1995	Frankenberg, Alfred A.	123/568.21
/	B	US-5,804,962 A	09-1998	Kather et al.	324/207.16
/	C	US-6,260,522 B1	07-2001	Stolk et al.	123/90.11
/	D	US-6,315,268 B1	11-2001	Cornea et al.	251/129.15
/	E	US-5,947,092 A	09-1999	Hussey et al.	123/568.26
/	F	US-6,313,726 B1	11-2001	Golovatai-Schmidt et al.	335/220
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## **FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

## **NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.